



# ***iMcV-Giga-MediaLinX***

## ***Operation Manual***

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## FCC Radio Frequency Interference Statement

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This equipment has been tested and found to comply with the limits for a Class B computing device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which the user will be required to correct the interference at his own expense.

Any changes or modifications not expressly approved by the manufacturer could void the user's authority to operate the equipment.

The use of non-shielded I/O cables may not guarantee compliance with FCC RFI limits. This digital apparatus does not exceed the Class B limits for radio noise emission from digital apparatus set out in the Radio Interference Regulation of the Canadian Department of Communications.

Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de classe B prescrites dans le Règlement sur le brouillage radioélectrique publié par le ministère des Communications du Canada.

## Warranty

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IMC Networks warrants to the original end-user purchaser that this product, EXCLUSIVE OF SOFTWARE, shall be free from defects in materials and workmanship under normal and proper use in accordance with IMC Networks' instructions and directions for a period of six (6) years after the original date of purchase. This warranty is subject to the limitations set forth below.

At its option, IMC Networks will repair or replace at no charge the product which proves to be defective within such warranty period. This limited warranty shall not apply if the IMC Networks product has been damaged by unreasonable use, accident, negligence, service or modification by anyone other than an authorized IMC Networks Service Technician or by any other causes unrelated to defective materials or workmanship. Any replaced or repaired products or parts carry a ninety (90) day warranty or the remainder of the initial warranty period, whichever is longer.

To receive in-warranty service, the defective product must be received at IMC Networks no later than the end of the warranty period. The product must be accompanied by proof of purchase, satisfactory to IMC Networks, denoting product serial number and purchase date, a written description of the defect and a Return Merchandise Authorization (RMA) number issued by IMC Networks. No products will be accepted by IMC Networks which do not have an RMA number. For an RMA number, contact IMC Networks at PHONE: (800) 624-1070 (in the U.S. and Canada) or (949) 465-3000 or FAX: (949) 465-3020. The end-user shall return the defective product to IMC Networks, freight, customs and handling charges prepaid. End-user agrees to accept all liability for loss of or damages to the returned product during shipment. IMC Networks shall repair or replace the returned product, at its option, and return the repaired or new product to the end-user, freight prepaid, via method to be determined by IMC Networks. IMC Networks shall not be liable for any costs of procurement of substitute goods, loss of profits, or any incidental, consequential, and/or special damages of any kind resulting from a breach of any applicable express or implied warranty, breach of any obligation arising from breach of warranty, or otherwise with respect to the manufacture and sale of any IMC Networks product, whether or not IMC Networks has been advised of the possibility of such loss or damage.

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## About the iMcV-Giga-MediaLinX

The iMcV-Giga-MediaLinX™ is an SNMP-manageable, IEEE 802.3 10/100/1000 switching media converter that converts both speed and media.

Each iMcV-Giga-MediaLinX module provides a single conversion between one of the following:

- 10Base-T twisted pair and 1000Base-SX/LX multi-mode or single-mode fiber
- 100Base-TX twisted pair and 1000Base-SX/LX multi-mode or single-mode fiber
- 1000Base-T twisted pair and 1000Base-SX/LX multi-mode or single-mode fiber

## LED and Port Operation

The following describes how the LEDs function on the iMcV-Giga-MediaLinX:



PWR	Glows green when powered
1000	Glows green at 1000 Mbps
100	Glows green at 100 Mbps
10	Glows amber at 10 Mbps
LNK/ACT	Glows green when a link established Blinks green when data activity occurs (this is true for both LNK/ACT LEDs)
FDX	Glows amber in Full-Duplex mode Off in Half-Duplex mode, blinks if collisions
FA	Glows green when a link is established
TX LL	Glows green when TX LinkLoss is enabled
LNK/ACT	Glows green when a link is established Blinks green when data activity occurs
MASTER	Glows amber in Master mode

The twisted pair port on the iMcV-Giga-MediaLinX includes AutoCross, a feature that automatically selects between a crossover workstation or pass-through connection depending on the connected device.

## **Installing iMcV-Giga-MediaLinX Modules**

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The iMcV-Giga-MediaLinX installs in any IMC Networks' chassis, each requiring one slot.

### **To install an iMcV-Giga-MediaLinX module:**

Step	Action
1	Remove the blank brackets covering the slots where the module is to be installed (if present) by removing the screws on the outside edges of the bracket.
2	Slide the module into the chassis via the card guides until the module is seated securely in the connector.
3	Secure the module to the chassis by tightening the captive screw.
4	Save any "blanks" removed during installation for future use should the configuration requirements change.

## **Installation Troubleshooting**

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- During installation, test the fiber and twisted pair connections with all troubleshooting features disabled. If desired, enable these features just before installation. This will reduce the features' interference with testing.
- Any testing of the module should be performed in an unmanaged environment. Either test in an unmanaged chassis or disable management in a managed chassis, where possible.
- LNK LEDs only function after both twisted pair and fiber connections are established.
- If using a high powered device (for long distance installations) for a short distance installation, the fiber transmitters may overdrive the receivers and cause data loss. In such a case, add an optical attenuator to the connection.

## Configuring the iMcV-Giga-MediaLinX

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The iMcV-Giga-MediaLinX may be configured with various features such as LinkLoss, FiberAlert, Auto-Negotiation, duplex mode and speed. The following sections include instructions for configuring both managed (via an SNMP-compatible management application like iView<sup>2</sup>) and unmanaged modules.

### In this section

- Managed Modules
- Unmanaged Modules
- Auto-Negotiation
- Selective Advertising
- Forcing the Duplex Mode
- Forcing the Speed
- FX Negotiation
- Master/Slave Mode
- Flow Control

### Managed Modules

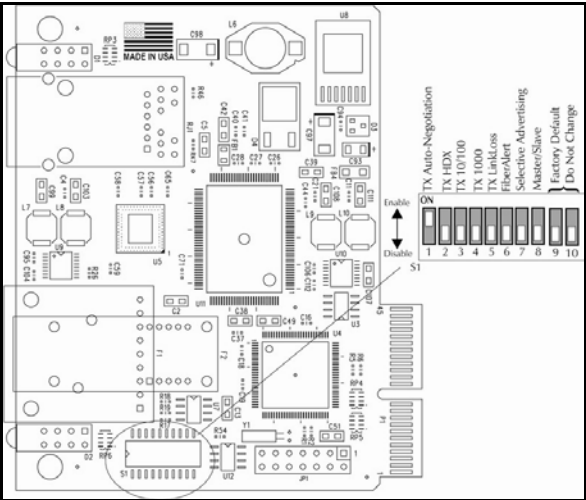
To manage an iMcV-Giga-MediaLinX, it must be installed within an SNMP-Manageable chassis. In a managed environment, install the module first, and then configure it using the management software. Within iView<sup>2</sup>, configure features and troubleshooting functions in the Module Detail section under the picture of the module. See the iView<sup>2</sup> online help file for more information.

### NOTE

*Until a module installed in a managed chassis is configured via the software, the module (and its LEDs) may not work properly.*

**Unmanaged  
Modules**

Configure the iMcV-Giga-MediaLinX for desired features before installing it inside a chassis.



DIP Switch Settings		
S1	Function	Default
1	TX Auto-Negotiation	ON
2	TX Port-HDX (ON) or FDX (OFF)	OFF
3	TX Port-1000 (ON) or 10 (OFF)	OFF
4	TX Port-1000	OFF
5	TX-LinkLoss	OFF
6	FiberAlert	OFF
7	Selective Advertising	OFF
8	Master (ON or Slave (OFF)	OFF
9	FX Negotiation	OFF
10	Factory Configured—Do Not Change	



**Auto-Negotiation**

The iMcV-Giga-MediaLinX ships from the factory with Auto-Negotiation enabled on the twisted pair port. In this mode, the twisted pair port negotiates for speed and duplex, autosensing 10 Mbps Full-Duplex, 10 Mbps Half-Duplex, 100 Mbps Full-Duplex, 100 Mbps Half-Duplex with Flow Control, or 1000 Mbps Full-Duplex with Flow Control. Configure Auto-Negotiation by setting the DIP switch (for unmanaged modules) or via the management software.

**Selective Advertising**

Selective Advertising, when used in combination with Auto-Negotiation, advertises only the configured speed and duplex mode for the twisted pair port. This allows configuration of both the twisted pair port’s speed (10, 100 or 1000 Mbps) and Duplex mode (FDX or HDX). Selective Advertising (switch 7) functions only with Auto-Negotiation (switch 1) enabled.

Selective Advertising Configuration			
<i>Desired Speed/Duplex</i>	<i>Switch 2: Duplex</i>	<i>Switch 3: Speed</i>	<i>Switch 4: Speed</i>
1000 Mbps FDX	OFF	OFF	ON
100 Mbps FDX	OFF	ON	OFF
100 Mbps HDX	ON	ON	OFF
10 Mbps FDX	OFF	OFF	OFF
10 Mbps HDX	ON	OFF	OFF

**Forcing the Duplex Mode**

The twisted pair port on the iMcV-Giga-MediaLinX can be set to either Half- or Full-Duplex operation in 10/100 Mbps (1000 Mbps is always FDX). Before manually setting the duplex mode, disable Auto-Negotiation by setting DIP Switch 1 to OFF.

- The twisted pair port is configured for Full-Duplex by default, which is the OFF position on DIP Switch 2.
- Configure the twisted pair port for Half-Duplex by setting DIP Switch 2 to the ON position.

**Forcing the Speed**

The speed on the twisted pair port (10, 100, or 1000 Mbps) can also be manually configured. (The fiber port always operates at 1000 Mbps/FDX.) Before manually setting the speed mode, disable Auto-Negotiation by setting DIP Switch 1 to OFF.

- Configure the twisted pair port for 10 Mbps operation by setting both DIP Switches 3 and 4 to

the OFF position.

- Configure the twisted pair port for 100 Mbps operation by setting DIP Switch 3 to the ON position and DIP Switch 4 to OFF.
- Configure the twisted pair port for 1000 Mbps operation by setting DIP Switch 4 to the ON position. (When ON, Switch 4 overrides Switch 3).

## **FX Negotiation**

The iMcV-Giga-MediaLinX includes the FX Negotiation feature, which helps ensure links with AN or forced FX devices. Disabled by default, it must be enabled or disabled on both ends of the connection to establish a link. Only enable this feature if the connecting device supports it.

## **Master/Slave Mode**

Master/Slave mode determines which clock is used between the iMcV-Giga-MediaLinX and the connected device. Slave mode is set by default to use the clock of the connected device. Master mode uses iMcV-Giga-MediaLinX's clock. The Master/Slave mode is only valid for the twisted pair link and can only be manually configured. Configure Master mode by setting Dip Switch 8 to the **ON** position.

## **Flow Control**

Flow Control is used to throttle the END device to avoid dropping packets during network congestion. Full-Duplex Flow Control functions only when the END device has Flow Control and advertises in Full-Duplex Mode. Half-Duplex Flow Control does not Advertise.

## LinkLoss and FiberAlert

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The iMcV-Giga-MediaLinX includes such troubleshooting features as FiberAlert and TX LinkLoss, which can help locate "silent failures" on the network. This section explains how FiberAlert and LinkLoss work, and how they will react in a network configuration, which should be understood before attempting

### **In this section**

- About Link Integrity
- What is TX LinkLoss?
- What is FiberAlert?
- Using FiberAlert and LinkLoss

### **About Link Integrity**

During normal operation, link integrity pulses are transmitted by all point-to-point Ethernet devices. When an iMcV-Giga-MediaLinX receives valid link pulses, it knows that the device to which it is connected is up and sending pulses, and that the copper or fiber cable coming from that device is intact. The appropriate "LNK" (link) LED is lit to indicate this.

The iMcV-Giga-MediaLinX also sends out link pulses from its copper and fiber transmitters, but normally has no way of knowing whether the cable to the other device is intact and the link pulses are reaching the other end. The combination of FiberAlert and LinkLoss allows this information to be obtained, even when physical access to a remote device (and its link integrity LED) is not available.

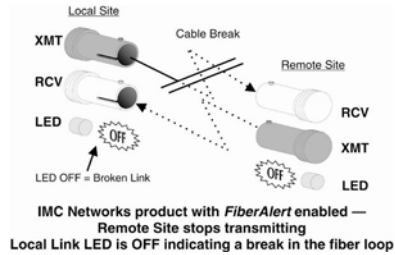
### **What is TX LinkLoss?**

TX LinkLoss is a troubleshooting feature. When a fault occurs on the twisted pair segment of a conversion, TX LinkLoss detects the fault and passes this information to the fiber segment. If a media converter is not receiving a twisted pair link, TX LinkLoss disables the transmitter on the media converter's fiber port. This result is a loss of the link on the device connected to the fiber port.

Enable TX LinkLoss by setting DIP Switch 5 to the **ON** position.

## What is FiberAlert?

FiberAlert is a troubleshooting feature that minimizes the problems associated with the loss of one strand of fiber. If a strand is unavailable, the device at the receiver end notes the lost link. The device will then stop transmitting data and the link signal until a signal or link pulse is received.



The result is the link LED on BOTH sides of the fiber connection will go out indicating a fault somewhere in the fiber loop. Using FiberAlert, a local site administrator is notified of a fault and can quickly determine where a cable fault is located. Enable FiberAlert by setting DIP Switch 6 to the **ON** position.

### NOTE

*Enable FiberAlert on ONE side of a media conversion only. Enabling it on both sides keeps both transmitters off indefinitely.*

## Using FiberAlert and LinkLoss

For a typical Main Site to Remote Site conversion, do the following on the iMcV-Giga-MediaLinX:

- Enable TX LinkLoss at the Main Site
- Enable FiberAlert at the Remote Site

## **IMC Networks Technical Support**

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**Web:** [www.imcnetworks.com](http://www.imcnetworks.com)

## **Specifications**

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### **Operating Temperature**

32° - 104° F (0° - 40° C)

### **Storage Temperature**

0° - 160° F (-20° - 70° C)

### **Humidity**

5 - 95% (non-condensing)

### **Power Consumption (typical)**

Input Load 500 mA



## Safety Certifications

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UL/CUL: Listed to Safety of Information Technology Equipment, including Electrical Business Equipment.

CE: The products described herein comply with the Council Directive on Electromagnetic Compatibility (89/336/EEC) and the Council Directive on Electrical Equipment Designed for use within Certain Voltage Limits (73/23/EEC). Certified to Safety of Information Technology Equipment, Including Electrical Business Equipment. For further details, contact IMC Networks.



**Class 1 Laser product, Luokan 1 Laserlaite,  
Laser Klasse 1. Annareil A'Laser de Classe 1**

European Directive 2002/96/EC (WEEE) requires that any equipment that bears this symbol on product or packaging must not be disposed of with unsorted municipal waste. This symbol indicates that the equipment should be disposed of separately from regular household waste. It is the consumer's responsibility to dispose of this and all equipment so marked through designated collection facilities appointed by government or local authorities. Following these steps through proper disposal and recycling will help prevent potential negative consequences to the environment and human health. For more detailed information about proper disposal, please contact local authorities, waste disposal services, or the point of purchase for this equipment.





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If the product's part number begins with an "8", it is compliant with the Restriction of Hazardous Substances (RoHS) directive.